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ABSTRACT

Illinois' Tech Prep Connection (TPC) project was undertaken to design and develop a comprehensive tech prep program providing sequenced, integrated academic and vocational coursework (in a 4 + 2 + 2 framework) in programs throughout five occupational clusters at the secondary, community college, and university levels. During FY92, which was its planning/orientation year, TPC served 30 high school districts with 9,000 secondary students, 2 community colleges with 5,000 students, and Western Illinois University with its 11,000 students. Twenty-nine of the 30 school districts signed project participation agreements for the 1992-1993 school year. Requests for support of TPC were mailed to 500 selected employers. Many of them responded with offers ranging from general support to specific placement opportunities for TPC students. The project team also worked with Building Fairness program personnel to promote nontraditional career opportunities and developed the following products: a tech prep booklet, brochure, newsletter, marketing materials, and standard forms for operational activities. (Several of the standard operating forms are appended along with the tech prep booklet. The booklet includes 11 references and sections on the tech prep movement, educational movement, delivery models, articulation, work-based learning, Illinois Plan for Tech Prep, assessment, and implications for higher education.) (MN)

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TECH PREP

TECH-PREP CONNECTION
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DIRECTOR

GEORGE PAPE
COORDINATOR

ED 361 544

TECH PREP CONNECTION FY92 FINAL REPORT

Illinois State Board of Education

Louis Mervis, Chairman
Robert Leininger, State Superintendent of Education

Department of Adult, Vocational and Technical Education

Vocational Education Program Improvement Section

Funding Agreement Number : JMA 2700

Source of Funds: Carl D. Perkins Vocational Education Act - Title IIIE

Project Funding: $82,068.00

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Official Project Title: TECH PREP CONNECTION

Department of Adult, Vocational and Technical Education Funding Agreement Number: JMA2700

Project Director: JOYCE TAYLOR

Funded Agency: LaMOINE VALLEY VOCATIONAL SYSTEM

Location of Funded Agency: MACOMB, IL

Time Period Covered: JULY 1, 1991 - JUNE 30, 1992

A. **Goals of the Project and its Relevancy to Vocational Education:**

Design and develop a comprehensive tech prep program which provides sequenced, academic and vocational integrated course work (4+2+2) in program throughout the five occupational clusters at the secondary, community college and university level.

Establish an exemplary program which addresses the state's performance goals and standards, while strengthening and improving the technical competence of youth and adults.

The potential impact on Vocational and Technical Eduation is relevant in that upon the completion of this program, students will have a working knowledge of technology and academic skills that will allow them to compete at the highest level, as well as attitudes and transferable skills to meet the requirements of a world-class work force.

B. **Major Accomplishments of the Project:**

The Tech Prep Connection Project serves thirty high school districts with nine thousand secondary students, two community colleges with five thousand students. Western Illinois University with eleven thousand students. (Total 25,000 students) The Tech Prep message was well received as evidenced by the fact that twenty nine of the thirty school districts signed Participation Agreements effective at the beginning of the 1992-93 school year. We have been pro-active in soliciting support for Tech Prep from the private sector. Five hundred mailings were sent to selected employers with numerous responses containing general support to specific placement opportunities for Tech Prep Students. We have worked with Building Fairness personnel in promoting non-traditional career opportunities.

C. **Products Delivered:** (All included in the Appendices)

The Western Illinois University Tech Prep Team produced a quality Tech Prep booklet which will be distributed throughout the Tech Prep Connection territory and would be appropriate for wider distribution. A Tech Prep brochure, Newsletter, and key tab were produced for purposes of marketing in all participating entities.

Standard forms for operational activities were produced as follows:

Student Planning Guide
School Participation Agreements
Sub Contract Form
Tech Prep ID Card
Private Sector Partnership Agreements
Mini Grant Form
Mellinger Grant Procedure

D. **Evaluation and Impact:**

FY92 was a planning/orientation year for the Tech Prep Connection project. Effectiveness of activities have been listed under major accomplishments. We will evaluate data, job placement, and success stories in FY93, our implementation year.

E. **Resource Listing:**

1) Material Resources:
   a) VHS - Planning for the 21st Century - 30
   b) VHS - Partnerships - 30
   c) Applied Communication Modules - 10
   d) Applied Mathematics Units - 12
   e) Principals of Technology - 7

2) Human Resources
   a) Paid Participant
      Dr. Jule Dee Scarborough, Professor
      Northern Illinois University, Consultant
   b) Unpaid Participants
      1) Gordon Kinkead, John Deere Co., Guest Speaker
      2) Ken Maurer, Superintendent Metamora H.S., Guest Speaker
      3) Pat Poertner, Caterpillar Co., Speaker/Advisory Council
      4) Sue Bassett, McDonough Hospital, Advisory Council
      5) Joe Townsell, John Deere Co., Advisory Council

F. **Problems:**

School people and the private sector in our area were not well versed in Tech Prep, resulting in more than expected time spent in orientation. We dedicated considerable time in Initiation and Education and only toward the end of the FY were we able to Delegate Tech Prep activities.

G. **Publicity:**

Newspaper articles concerning the Tech Prep Connection Project are included in the appendices.

Project Title: TECH PREP CONNECTION

Funding Agreement Number: JMA 2700

Name of Person Completing Addendums: GEORGE W. PAPE, TECH PREP COORDINATOR

Please provide the most accurate information available for the following in order for the Illinois State Board of Education staff to collect statewide data.

1.) Number of secondary sites involved: 31

(List each secondary site.) V.I.T. #2, Industry #165, Bushnell-Prairie City #170. Northwestern #175, Colchester #180, Macomb #185, Roseville #200, Hamilton #328, LaHarpe #335, Dallas City #336, Hancock Central #338, Plymouth #319, Astoria #1, Canton Union #66, Cuba #3, Farmington Central #265, Lewistown #341, Spoon River Valley #1, Abingdon #217, Alexis #400, Alwood #225, Avon #176, Galesburg #205, Knoxville #202, Monmouth #38, ROWVA #208, Union #115, Southern #120, Warren #222, Williamsfield #210, Yorkwood #225

2. Number of post-secondary sites involved: 3

(List each post-secondary site.) Carl Sandburg College
Spoon River College
Western Illinois University

3. Estimated number of **instructors** involved on an **awareness** level:

secondary 341 — post-secondary 90
academic 248 — technical 24
technical 93 — academic 66

4.) Estimated number of **instructors** involved in **implementation**: NOTE: Implementation scheduled for FY93.

secondary _____ — post-secondary _____
academic _____ — technical _____
technical _____ — academic _____

5.) Estimated number of **counselors** involved on an **awareness** level:

secondary 41 — post secondary 6

6. Estimated number of **counselors** involved in **implementation**: NOTE: Implementation scheduled for FY93.

secondary _____ — post secondary _____

7. Estimated number of **administrators** involved on an **awareness** level:

secondary 72 post secondary 12

8. Estimated number of **students** enrolled in **Tech Prep** courses: NOTE: Implementation scheduled for FY93.

secondary _____ post secondary _____

9. Number of **secondary staff** participating in a **VIP type** of private sector experience:

academic _____ technical _____

10. Number of **post secondary staff** participating in a **VIP type** of private sector experience:

academic _____ technical _____

11. Number of sites using **Applied Math curricula** either as a stand-alone course or infused in another course: NOTE: Implementation scheduled for FY93.

number of sites _____ number of courses per site _____

12. Number of sites using **Applied Communication curricula** either as a stand-alone course or enfused in another course: NOTE: Implementation scheduled for FY93.

number of sites _____ number of courses per site _____

13. Number of sites using **Principles of Technology**:

number of sites _____ number of courses per site _____

14. Number of sites using **Applied Biology/Chemistry**:

number of sites _____ number of courses per site _____

15. Number of instructors participating in indepth applied curricula inservice (designed to prepare them to teach the materials, not awareness) 20

16. Number of private sector representatives who are involved in Tech Prep 50

List specific types of private sector involvement and activities:
Speakers - Tours - Part Time Work Incentives (Planned)

17. Is **work based learning** currently available to students? _____ Yes X No

If yes, indicate the number of students involved in each type. (definitions attached)

____Extended Campus	____Supervised Agricultural
____Corporate Campus	____Experience Placement
____Internship	____Apprenticeship
____Cooperative Vocational Education	____Career Practicum

18. Has **Tech Prep student selection criteria** been identified? ___Yes __X__No

If yes, please attach a list of criteria.

19. Have plans for remediation of students **not** meeting selection criteria been developed?

____Yes __X__No

If yes, please attach a brief description of the plan if possible.

TECH PREP Educational Movement of the '90's

Project Staff: Western Illinois University

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Dr. Dennis Carson

Dr. Ralph Dirksen

Dr. Len Harzman

Dr. Robert Motley

Dr. Larry McWard

Ms. Sherri Zimmerman

Ms. Mary Slater

ILLINOIS STATE BOARD OF EDUCATION

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Robert Leininger, State Superintendent of Education

DEPARTMENT OF ADULT, VOCATIONAL AND TECHNICAL EDUCATION

Vocational Education Program Improvement Section

ILLINOIS STATE BOARD OF EDUCATION
DEPARTMENT OF ADULT, VOCATIONAL AND TECHNICAL EDUCATION
VOCATIONAL EDUCATION PROGRAM IMPROVEMENT SECTION

PRODUCT ABSTRACT

1. Title of material TECH PREP Educational Movement of the '90's

2. Date material was completed June 1992

3. Please check those applicable: New material x Revised material ___
Field-tested material ___

4. Originating agency Tech Prep Connection

Address P.O. Box 556, Macomb, IL Zip Code 61455

5. Name(s) of developer(s) Western Illinois University, College of Applied Sciences

Address Knoblauch Hall, Room 216, Macomb, IL Zip Code 61455

6. Developed pursuant to Contract Number ___

7. Subject Matter (Check only one according to Dept. of Education Code):

Code

___	01 Agricultural Education	___	10 Industrial Technology
___	03 Bus., Mrktng. & Man. Occup.	x	16 Technical Education
___	04 Distributive Education	___	17 Trade & Industrial Educ.
___	07 Health Occupations Education	___	22 Cooperative Education
___	09 Home Economics Education	___	Career Education
		___	Other (Specify) ___

8. Education Level

___	Pre-K Thru 6	___	7-8	x	9-10	x	11-12
x	Post-Secondary	x	Adult	x	Tchr. (Inservice)		
x	Adm. (Pre Service)			___	Other (Specify) ___		

9. Intended for Use By:

___	Student	x	Classroom Teacher	x	Local Administrator
x	Teacher Ed.	x	Guidance Staff	x	State Personnel
___	Other (Specify) ___				

10. Student Type:

x	Regular	___	Disadvantaged	___	Handicapped
___	Limited-English Profic.	___	Other (Specify) ___		

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Vocational Educ. Program Improvement Section, E-426
100 North First Street
Springfield, Illinois 62777-0001
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16. General Description (State the general objective and suggested method of use. Summarize the content and tell how it is organized. Write the description so that it can be used to promote the material. Continue on back of this sheet or on another sheet if necessary.)

The document is intended as a comprehensive orientation to Tech Prep and its unique concepts. Included are implications for Higher Education and references used in the development of the booklet by project staff.

17. Person Completing this Abstract George W. Pape

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APPENDICES

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Educational Movement of the '90s

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The Tech Prep Movement

The emergence of the Tech Prep movement has come from the changing needs of the workplace and the direction schools have taken to improve education as a result of The National Commission on Excellence in Education Report, "The Nation At Risk" (1983). An increased emphasis has been placed on college preparatory programs. As a result, greater numbers of students have chosen general education programs which prepare them for neither the workplace nor for college (Parnell, 1985). The reauthorization of the Carl Perkins Act, renamed the Carl D. Perkins Vocational and Applied Technology Education Act of 1990, includes a separate line item, Part E, Title III, and established Tech Prep Education.

A recent analysis of national data on high school students by Educational Testing Service (Applebee, et al., 1989, p.16) indicates that:

> Sixty-one percent of the 17-year-old students could not read or understand relatively complicated material such as that typically presented at the high school level. Nearly one-half had limited mathematics skills and abilities that go little beyond adding, subtracting, and multiplying with whole numbers. More than one-half could not evaluate the procedures or results of a scientific study, and few included enough information in their written pieces to communicate their ideas effectively.

The National Assessment of Vocational Education Study (NAVE), concluded that, "An objective of federal policy in vocational education should be to encourage the expansion of academic learning in vocational education and the integration of academic and vocational curricula" (Wirt, et.al, 1989, p.83).

Tech Prep has been defined in Illinois as an educational path that integrates college preparatory course work with a rigorous technical education concentration. It is a planned sequence of courses, both academic and technical, that begins at the 9th grade, continues through the 12th grade, and is articulated with a post-secondary experience leading to an associate degree or towards attaining a four-year baccalaureate degree. Tech Prep provides students with the skills and competencies necessary to meet employers' performance standards. These skills apply not only to entry-level jobs but also to career advancement. Tech Prep is a method of instruction targeted at the middle 50 percent of students. Instruction

focuses on application of theory to real-life situations, bringing academic and vocational teachers together through interdisciplinary cooperation. Tech Prep assists in articulation and a smooth transition from high school to community college to four-year university. It establishes an opportunity for a business/industry/education partnership to ensure a competent work force capable of functioning in a dynamic workplace (Illinois State Board of Education, [ISBE] 1991a).

One of the driving forces that led to the Tech Prep movement has come out of the workplace. With the commercialization of technology has come the need for more mid-range technicians to maintain and adapt technology to the workplace (Parnell, 1985). A gap exists between the current level of work force skills and the level needed for the high-tech workplace. Employees will need to understand basic principles of technology, connect practice and theory in the workplace, identify problems and find solutions, work independently with a network of individuals, and work with the hands as well as the brain (Parnell, 1985).

A recent report by the Department of Labor, Secretary's Commission on Achieving Necessary Skills (SCANS Report) stated that two conditions in the last quarter of the 20th Century have changed the entry into the world of work: the globalization of commerce and industry and the explosive growth of technology on the job (Executive Summary, 1991). Five categories of workplace competencies were identified in the report:

1) Resources: Identifies, organizes, plans and allocates resources
2) Interpersonal: Works with others
3) Information: Acquires and uses information
4) Systems: Understands complex interrelationships
5) Technology: Works with a variety of technologies (SCANS, Executive Summary, 1991, p.2,3).

Due to sweeping advancements in technology, the workplace now demands not only the possession of highly technical skills, but strong academic skills, interpersonal communication skills, and the willingness to be a lifelong learner.

Employers in America have expressed a desire for education to return to the basics (Kearns, 1988). The basic skills to which referred usually include those qualities that make an entry-level worker desirable to a prospective employer. Academic skills are very important, but so are the

interpersonal skills and specific job skills that are taught in many vocational programs (Reece, 1988). It is important to define terminology to guarantee that business and education are referring to the same ideas (Gray, 1989).

The report of the President's Commission on Industrial Competitiveness (1985) included some recommendations on specific educational changes which would enhance the quality of human resources in the United States. Those recommendations include: improving education through educational technology, addressing the dropout problem, strengthening both engineering and business education, and encouraging employer investment in training and retraining. Strong support for these recommendations has been generated from very powerful business leaders in the United States (Kur, 1990).

A major problem with which education has been faced is the number of dropouts that occur each year. It has been estimated that approximately 700,000 students drop out of school each year, while there are at least that same number who graduate from school as functional illiterates (Townley, 1989). These individuals do not have the qualifications or skills to obtain jobs; thus they become a burden on society. Improved programs to help lower the dropout rate and raise the literacy level are changes that must occur in the educational system.

The typical school system across America attempts to educate all students within its district. Studies indicate the school population can be grouped into three broad categories consisting of: a) special needs, b) general education, and c) college bound. Educational statistics would indicate that roughly fifty percent of all students are in the general education category and thus should be receiving the major focus from education.

However, many school systems across America emphasize the need for higher education. These schools place their major efforts into preparing students for entry into college. At the same time, funding agencies are emphasizing the importance of meeting the needs of special populations, causing educational systems to reallocate their local funds into special-needs programs. This emphasis on college prep and special needs within each school district has caused many schools to ignore the middle 50 percent of the student population, thus helping to reinforce the term "neglected majority" for general education students.

The Educational Movement

The Tech Prep initiative is aimed at secondary students who are more concrete rather than abstract learners. Most tech prep students fall between the 25th and 75th percentile of secondary students and many are presently in general education programs. Some of the students may be in college preparatory programs but have difficulty conceptualizing and retaining abstract knowledge.

Tech Prep requires integrating academics into the vocational classroom as well as integrating real-life situations into the academic classroom; therefore abstract concepts become more understandable to the students. Academic teachers and vocational teachers work together to improve the understanding and competency of students. Integration represents a major shift in the way education has been done and will require an intra-school effort across the disciplines. The support of school administration is essential if the integration of academics is to be achieved. Opportunities for academic and vocational teachers to interact and plan must be arranged and encouraged if this type of curriculum development is to succeed. Scheduling planning periods at the same time can provide time for cooperative planning and teaching.

Articulation is another important part of Tech Prep. The curriculum must be a planned process linking the high school with the community college curriculum, allowing students to make a smooth transition. Four-year universities need articulation agreements with community colleges to continue the transition for completion of a baccalaureate degree.

Lack of continuity in learning was identified by Hull and Parnell in Tech Prep Associate Degree, A Win-Win Experience (1991). As one of the problems in American education, the lack of continuity results from high absenteeism, problems in moving from one school to another, a lack of communication between teachers, and a gap between high school and post-secondary education. The results are fragmentation and low student achievement. The Tech Prep curriculum must try to address these problems and create a curriculum that is joined through a sequence of courses that is logical to the students and parents.

The Education for Employment movement in Illinois provided every vocational cluster with a set of task lists and employability skills. Employers were involved through the Developing a Curriculum

(DACUM) process. They were asked to verify the tasks which workers entering the work force would need. Tech Prep takes this process a step further by working with employers to identify and communicate the performance standards needed for the technical workplace. The Hudson Institute study of the workplace, Workplace 2000, (1991), found that companies are literally in the midst of a sea of change as the composition of the work force changes. Another major concern is the mismatch of skills employees and job applicants possess and those required of the workplace. Tech Prep was initiated to eliminate that gap.

Tech Prep will require restructuring curriculum and setting higher performance standards than in the past. The standards will include not only technical skills, but also the ability to read, communicate, and apply math and scientific knowledge to perform work and solve problems in the workplace. Standards must be rigorous enough to meet the new demands of the workplace, and progression through the sequence of courses must be based on outcomes. Students will need academic assistance and encouragement to achieve higher standards. The incentive could be a challenging career with good pay for those students who are willing to strive toward achieving this goal.

Delivery Models

Various ways may be used to accomplish integration of vocational and academic subjects. The delivery method chosen will depend on a given school's unique characteristics and qualities, such as: students, faculty, equipment, funding available, and location. A review of literature reveals several models which are emerging to accomplish vocational and academic integration. These may be summarized as follows:

1. Increased applications in vocational courses and/or academic courses.

This model takes several different formats. More academic content may be incorporated into vocational courses. Academic competencies which are relevant to the vocational subject being taught must be identified. This will require active participation of business and industry personnel in the education process. Academic competencies are then integrated in a realistic and practical way so that students can see how the academic competencies are relevant to the vocational content.

Vocational content may be incorporated into academic courses. This plan often takes the form of separate "applied academic" courses which use examples and practical applications from the working world. Students are shown how academic content is an integral part of day-to-day work on the job.

Academic teachers may assist vocational teachers to enhance academic competencies in vocational programs. This plan requires much cooperation between academic and vocational teachers. The vocational teachers identify the academic skills that are required. Academic teachers then assist in helping to plan ways of integrating and teaching these academic skills. The academic teacher may actually teach some of the units in the vocational course, or students may be sent to academic teachers for instruction in selected topics.

2. Parallel instruction.

In this approach, academic content is integrated into vocational courses and academic courses are made more occupationally relevant. The courses are then aligned. Vocational and academic teachers plan and coordinate their courses and programs so students enrolled in both courses are learning similar topics at the same time in both academic and vocational courses. With this plan, topics being taught simultaneously are reinforced in both the academic and vocational courses.

3. Academy model—school within a school.

When the academy model is implemented, a core of teachers within a given school work together and teach the same students for two or three years. For instance, a vocational subject teacher, an English teacher, a mathematics teacher, and a science teacher form the instructional staff of the academy. Students in a class take all four subjects from these four teachers and stay with these teachers for two or more years. Any additional subjects are taken as usual with other teachers and students in the high school.

The faculty of the academy work closely with each other in planning and articulating course content. They get to know students on a personal basis and support each other in identifying problems and ways of coping with them. The academy faculty may also work closely with business and industry. These personnel may be called on to arrange visits, to provide internships, to act as guest speakers, or to become mentors for the students. The academy model is especially helpful to students who may be potential dropouts, since it helps the students identify with a group and gives special attention to the students.

4. Other delivery models.

Other delivery models include occupational clusters or majors, occupational high schools and magnet schools, and senior-level projects.

A. Occupational clusters or majors.

In some schools the occupational cluster or major concept suggests replacing traditional departments with career areas. Typical clusters might include agriculture and natural resources, business and marketing, and public service and health. Vocational and academic teachers are assigned to a career area, or department, and the faculty plan courses and sequences which are aligned with requirements for a career path. In other instances, teachers belong to both their conventional academic or vocational department and to clusters or career paths.

B. Occupational high schools and magnet schools.

This concept is most practical for large population centers. It has limited use in small or rural areas. Occupational high schools provide much opportunity for academic integration since faculty have common goals that facilitate integration. The typical magnet school has very limited vocational offerings and is perhaps less conducive to vocational and academic integration.

C. Senior-level projects.

Vocational and academic faculty collaborate to design projects which include the completion of activities and competencies from both vocational and academic areas. The project requires students to work independently and to make decisions that solve complex problems.

Regardless of the model used, successful integration requires vocational teachers to give up old ideas of job-specific training. Academic teachers need to abandon old teaching methods and conceptions of what must be taught. Administrators are required to give teachers real discretion, and state departments must be prepared to eliminate some of their bureaucratic constraints.

Articulation

Articulation is an important aspect of the Tech Prep initiative. Articulation can be broadly defined as a process of linking two or more educational systems within a community. This helps students make a smooth transition from one level to another without experiencing delays, duplication of courses, or loss of credit (Hull and Parnell, 1991). Tech Prep is designed to work similarly to traditional college prep programs. Secondary students with an aptitude or interest in pursuing advanced technical training are placed in programs that prepare them for more advanced training at the community college after they graduate from high school (Scott, 1991).

A study that supports the Tech Prep Initiative was done by the Commission on the Skills of the American Work Force (1990). Their report, America's Choice: High Skills or Low Wages, recommends that, "a comprehensive system of technical and professional education certifications and associate degrees should be created for the majority of our students and adult workers who do not pursue a baccalaureate degree" (Hull and Parnell, 1991, p.47). Most articulated programs include the possibility for completion of a baccalaureate degree. Covered under the umbrella of articulation are the numerous labels which indicate the number of grade levels that are involved. The grade levels include high school (four years or two years at the junior-senior levels), two years in the community college, and two years at the university baccalaureate level. The curriculum requirements of articulated programs should include technical skills integrated with academics including written and oral communications, mathematics, interpersonal skills, science, and job-search skills. The following plans are examples of the combinations of articulated programs which can be made between the high school, community college and the university.

A. 2+1 High School - Post-secondary Program

The plan describes a time shortened 2+2 program whereby a student earns enough advanced credit in high school to finish an associate degree with one additional year at the post-secondary institution (Hull).

B. 2+2 High School - Community College Program

Two years of high school junior-senior level technical courses are articulated with two years at the community college. Through the collaboration of the instructors, the courses would be sequenced so as to be

sequential, non-duplicative and smooth in transition. Integrated academic and technical courses at the high school level would prepare students for more technical courses at the community college level.

Researchers at the National Center for Research in Vocational Education concluded that most 2+2 secondary/post-secondary articulated programs could be classified into two categories (Hull and Parnell, 1991):

1. Advanced placement (time-shortened) programs which:
   - eliminate unnecessary repetition
   - grant advanced placement in post-secondary programs
   - allow students to complete post-secondary programs in less time

2. Advanced skills programs which:
   - also eliminate unnecessary repetition
   - add more advanced training with high technology emphasis
   - allow students to complete post-secondary programs with higher-level skills

C. 2+2 Community College - University Program

Although this plan is not a part of Tech Prep, it is an increasingly popular program. In this sequence, the two years at the community college level are articulated with the remaining two years at the university baccalaureate level. This 2+2 is a technical subject matter sequence in addition to the community college transfer program that deals mainly with the transfer of general education courses to the university.

D. 2+2+2 High School - Community College - University Program

The plan refers to an articulated program that includes the last two years of high school (Grades 11 and 12), a two-year post-secondary program at the community college, and two additional years of a four-year baccalaureate degree program all in the same subject field (Hull and Parnell, 1991).

E. 4+2+2 High School - Community College - University Program

This sequence refers to an articulated plan whereby the high school technical experience leads to a two-year associate degree at the community college level. The student then continues on in the same subject field for another two years at the university level, earning a baccalaureate degree. The plan is based on an eight year period. During this time the student can obtain the technical and professional competencies required for the career field.

Work-based Learning

Perhaps the most relevant component in a student's formal education is the practical, applied, on-the-job experience leading to a career choice. Many exciting examples of work-based learning are operational throughout the nation. Almost all exemplify structured, supervised work experiences for a given period of time. In some cases there are alternating periods of time at work and school, known as co-operative education.

The success for both education and business/industry are inextricably linked. National reports associate America's ability to compete in a global economy, and thus maintain the United States economic viability, with the ability of our work force to perform at world-class levels. The preparation of a world-class work force must be a fundamental goal of education.

America's strongest economic competitors promote the idea that education and skill development are the keys to high wages and full employment. These competitors have structured work environments that fully utilize the skills of the work force. They have also developed effective education and training systems that bring workers to world-class standards.

Workplace learning and continuous skill upgrading are well-recognized goals of occupational education. These goals are accomplished by encouraging continuous skill upgrading, expanding apprenticeship programs, and providing technical preparation. Getting business and industry involved in defining skill needs and curricular content is important. This is often accomplished by the Developing A Curriculum (DACUM) method.

A study by John Bishop (1989) examined the effects of vocational education on the wages and earnings of graduates. Those findings show that graduates who have taken vocational education are somewhat more likely than other graduates to have a job — but not a higher paying job. It is interesting to note that only 38 percent of the vocational courses which students had taken in high school yielded job skills that were used in technical jobs 16 months after graduation.

The National Assessment of Vocational Education (NAVE) study reported that the occupational content of vocational education needs to be broadened so that work skills are applicable across a wider range of jobs and courses than at present (Wirt, 1989).

New Carl Perkins legislation does not directly specify work skills. Our challenge as educators is to broaden vocational curriculum and make applied learning part of the curriculum for all students. This will involve transforming the occupational content of vocational education. Our goal is to expand the opportunities for students to gain skills that will be particularly valuable in the work force of the future. These skills should enable students to: communicate effectively, apply knowledge productively, learn on-the-job, and take the initiative in solving problems.

Successful Tech Prep programs require committed partnerships between employers and educators. Such partnerships can establish performance standards that would prepare graduates who are able to contribute productively to the economy. Some key roles and responsibilities of business, industry, and labor groups include:

- providing work-based learning experiences
- assisting in identifying performance standards
- assisting in providing incentives for students

Work experience components for Tech Prep often include career exploration and internships. In the case of community college students, internships typically come after students have earned 12 credit hours in an occupational area.

Each of the participating school's Tech Prep Initiatives Profiles contained in Appendix C of the Illinois Tech Prep Planning Strategies guide (1991) lists business and industry involvement in their Tech Prep program. Typical program highlights include:

- assisting in developing skill standards
- determining program entry/exit skills
- sharing resources and facilities
- assisting in curriculum content
- serving on implementation teams and advisory councils
- touring business and industry facilities
- providing summer internships for teachers
- signing agreements to give priority hiring to Tech Prep graduates

Kenneth Gray (1991) states that an increased emphasis on Tech Prep calls for an increased academic emphasis and an increased workplace literacy. This, he says, may be more important than manipulative occupational competencies. Included in workplace literacy are, among others, the ability to diagnose and solve problems, make decisions, and work productively in groups.

The corporate community of this nation is engaged in many positive educational partnerships. A fundamental rule when working between business/industry and education is that the partnership must be collaborative. It must be based on mutual respect with continual dialogue and mutual goals. The ultimate aim should be to strengthen and improve the quality of education by supporting school goals and objectives. Fully functioning partnerships will surely lead to a win-win scenario with the winners being the youth, educators, employers, and employees of the nation.

Illinois Plan for Tech Prep

Tech Prep Teams

Illinois is in the second year of initiating Tech Prep. In 1990 the Illinois State Board of Education funded 17 local Tech Prep planning projects for the purpose of integrating college preparatory course work with a rigorous technical education concentrate. The projects were extended in the 1991 school year and 14 additional sites were added.

The process of Tech Prep implementation takes time to implement. In the first stages it can be overwhelming because there is so much to do and so many people to involve. The first step involves appointing someone to direct the project and to select a Tech Prep team to be the planners. It is critical that key groups be involved in the planning. Top leaders from the participating schools and colleges should be participants as well as representatives of business and industry. Site-based planning teams must be established as the project evolves.

The next step is to develop a local philosophy and have the planners reach consensus on key issues. Some of these issues include: defining the purpose of the local Tech Prep initiative, determining who should participate, how the program is to be evaluated, and how the planning process is to be conducted (ISBE, 1991b).

The Planning Team develops an organizational structure for planning and bringing together people whose talents may be used effectively and creatively for the purpose of promoting and accomplishing the shared goal of institutionalizing Tech Prep. Some of the functions of the team include:

1. Developing goals, components and action plans.
2. Developing contingency plans.
3. Creating implementation and articulation strategies.
4. Working toward consensus in an atmosphere of cooperation, trust, and sharing, always being facilitated by positive direct lines of communication.
5. Evaluating the process
   (ISBE, 1991b, p.25)

The site teams develop the local educational agencies approach to implementing the process. This part of the process must include developing local policies and establishing business/industry collaboration. Staff development will be needed. The curriculum must be planned with a sequence of courses and articulated with the community colleges. Developing the curriculum must involve both academic and technical faculty. Written agreements with participating institutions must be negotiated and guidance and counseling provided. Marketing Tech Prep to the parents, students and community will be needed (ISBE, 1991b).

In Illinois the first year projects are at various stages of implementation. Some of the schools have initiated the first stages of curriculum change, others have courses in place for the 1992-93 school year. Community colleges are also at different stages of articulation. Some have articulation agreements in place, others are exploring the options available. It will take several years to implement the Tech Prep initiative and continued effort and coordination will be required to sustain it.

Two primary concerns are: 1) will the initiative improve the competence of students?, and 2) can vocational/technical and academic teachers work together to bring about the needed results?

Assessment Process

An evaluation plan is an integral part of the Tech Prep process and will ultimately be directed toward assessment of the desired outcomes. Assessment should be conducted throughout the planning, implementation, and continuation stages. This should take place in relation to the goals established by the team and should link the objectives to the desired outcomes.

The learner outcomes must be related to established performance standards. Business and industry people assisted in validating the Illinois vocational task lists. They must also assist in determining the desired and appropriate performance standards. Documentation will be needed to provide data for both quantitative and qualitative evaluations. In the planning process the evaluation method should be defined and communicated to everyone involved. Students and parents particularly need to understand the uniqueness of this process. Early in the introduction to Tech Prep, students must be made aware of what is expected of them and how they will benefit.

Planners must determine how evaluation results will be used. To ensure the data are used to improve Tech Prep, it is recommended that the decision points be built into the initiative so that findings are utilized to make future decisions about the educational program. Findings must be reported in an open, frank, and clear manner. Key groups should be involved in determining the evaluation questions and procedures. Quality indicators should be identified and utilized in the assessment process (ISBE, 1991b).

The 17 Tech Prep projects funded during the first year have conducted evaluations. The project directors and coordinators provided statements about the first year of Tech Prep in their schools. Feedback given by some of the participants includes the following:

> "Top management support from all participating schools, colleges, and business and industries is critical."
>
> Gordon Kinkead
> John Deere Harvester Works

"Inform parents about Tech Prep and its benefits to students. If parents believe in the program, it will have a much better chance of being a success."

Lloyd Cundiff
Elgin Community College

"Don't try to go too fast or bite off too much; ..."

Pam Block
Northwest Suburban Career Cooperative

"Be prepared for frustrations and barriers ... Involve teachers early in the planning process."

John Allen
Illinois Valley Community College

"Individuals involved in Tech Prep must possess a vision, be willing and capable of sharing their vision, be able to recruit others from their organization, and be flexible and cooperative in working with others."

Sharon Wheeler
City Colleges of Chicago
(ISBE, 1991b, p.95,96)

The concepts that are included as a part of the Tech Prep Initiative evolved from some of the work done during the last decade. Several states became involved in the integration of academics into vocational education during the 1980s. In 1983, the Ohio Department of Education approved nine "deliberately unconventional" pilot projects for the purpose of strengthening academics in vocational education. Two conditions of these projects were: 1) that they be occupationally specific in instructional content, and 2) the design includes a non-laboratory instructional component. Early results revealed improved test scores and increased student and teacher motivation. A junior food service group revealed an average of 93 percent improvement. Teachers were impressed by the

enthusiasm and confidence of the vocational students compared to the somewhat blase attitudes of students in the college prep program (Thane & Douthitt, 1987).

Ohio utilized several formats for delivering the courses. Program delivery provided an average class size of 18 students. Instructional staff conducted home visits to familiarize parents and students with the program's goals and expectations prior to the students entering the program. Students took several pre-tests to establish competency profiles. Math skills were tested using the McGraw-Hill/CTB Math Test. Typically, 19 percent of the students passed. English and Science levels were determined by scores from the Stanford Diagnostic Test of Basic Skills. A computer-aided instruction program was established to support students who needed growth in the academic areas.

Academic and vocational teachers were given three to five weeks during the summer or two hours a day during the school year to develop learning activity guides (LAGS). They also developed teacher activity guides (TAGS), job task sheets, and other needed curriculum resources. The curriculum format was totally computerized and became individualized instruction. Students were required to do more individual work outside class and asked to take more responsibility for their learning.

The results indicated that both staff and students were convinced of the merits of the integration of academics and vocational instruction. Teachers said that teaching was more meaningful. Students in the experimental groups scored higher on achievement tests and technical performance tests than did students in the control group. Motivation was also higher and absenteeism was lower (Thane & Douthitt, 1987).

The Oklahoma Department of Education initiated two five-year pilot projects for the purpose of strengthening the basic competencies of vocational students in communications, mathematics, science, critical thinking, and problem solving. Many approaches were utilized to assess the projects. Classroom observations and focus groups were two tools used to study the process and progress at the pilot sites. Observations repeated many times provided data concerning the incorporation of basic academic competencies, as well as instructional resources and methodologies used. The focus groups provided insight into the participating teachers' perception of the project (Watkins, 1990).

At the end of the first two years, basic skills reinforcement was noted in 85 percent of the observed vocational classrooms. Basic skills as the primary topic of instruction was observed fewer than 4 percent of the time. Basic skills reinforcement was noted in 98 percent of the observed non-vocational classrooms.

During 1989-90, simple reading (54 percent) and simple math (41 percent) were skills most often observed in the vocational classroom. Simple writing (72 percent) and simple reading (71 percent) were observed most often in non-vocational classrooms. Complex speaking (2 percent; 1 percent) and complex writing (1 percent; 0 percent) were observed the least number of times in both the vocational and non-vocational classrooms.

The use of higher-order thinking skills (problem-solving, critical thinking, evaluation/judgement) was seen in 80 percent of the vocational classrooms observed. Science skills were least observed in the applied mode, 20 percent in vocational and 28 percent in the non-vocational classrooms (Watkins, 1990).

The focus group findings indicated that teachers were generally positive about the Principles of Technology course. However, the group experienced some mixed emotions because it required a lot of time and did not fit in with a pre-existing program. The teachers identified the importance of having the correct equipment and the time to familiarize oneself with the laboratory exercises before teaching the course.

The applied communications course received fewer positive comments from pilot site teachers because they felt the material they had was not applicable to their curriculum. They felt it was "not really English." Teachers felt their teaching had become stronger and made them more aware of the skills needed at different levels in the sequence. Although the teachers saw themselves as the prime movers, they seemed to feel that there was not enough communication between teachers and administrators (Watkins, 1990).

Owens and McClure (1989) developed a conceptual framework for teacher collaboration. It identified the factors that influence cooperation and their benefits for students and teachers.

The National Center for Research in Vocational Education is in the process of evaluating a number of efforts to integrate academic and vocational education. Their preliminary findings are:

> Basic skills and academic content included in vocational courses increase as vocational teachers make the academic foundations of various occupations more explicit and as they find more vocational examples appropriate for integrated classes.
>
> The rigor of vocational courses is increased with the greater use of academic material and with applied academic courses.
>
> The teaching of academic subjects often improves as teachers learn to use more applications and more problem-oriented approaches.
>
> The content of the curriculum is upgraded. Watered-down academic courses are replaced with more rigorous applied academic courses.
>
> The coherence of the high school curriculum is improved as vocational teachers, academic teachers, and counselors work together to define coherent sequences of courses and four-year programs of study that contain appropriate amounts of both academic and vocational subjects.
>
> The patterns of segregation of vocational and academic teachers, and the suspicion of each other's teaching, have been broken down as they work with each other on new curricula. This helps them gain a better understanding of the strengths of each other's approaches.
>
> In a few cases, the segregation of academic and vocational students has been reduced by developing courses and programs in which the divisions between academic and vocational subjects are eliminated.
>
> Teachers, both vocational and academic, begin to share a sense of excitement about teaching,particularly as they find out how many ways they can improve their teaching through collaboration. Students become more excited about learning as they see more clearly the applications and future importance of school-based learning (Benson, 1989, p.12,13).

These findings of existing integration programs are promising and exciting. They lend support to the Tech Prep initiative. These findings can provide insight and guidelines as Illinois further implements Tech Prep programs.

Implications for Higher Education

As the high schools and community colleges across Illinois and other states adopt curriculums and articulation agreements to the application methodology, students matriculating through the Tech Prep Program should arrive at the university with a higher level of competence and different courses on their transcripts.

The universities must re-evaluate the courses accepted for entrance requirements and recognize the Tech Prep courses as viable academic equivalents. Existing 2+2 agreements with community colleges should be re-evaluated. New 2+2 agreements may be established based on higher competency levels attained by graduates with Associate Degrees from Tech Prep Programs.

University departments should re-evaluate existing curriculum to ascertain the performance standards and the outcome expectations for four-year graduates. The flow of education should be smooth from high school to community college and the university (4+2+2), with performance standards higher at each level. One of the problems will be educating a mix of students, some with little or no technical background, and others having matriculated through the rigorous Tech Prep programs. In addition, an increasing population of adults returns to higher education to change careers and to upgrade job skills. They too must fit into the process.

Departments educating graduates in the technical area should develop a system whereby students may take proficiency tests in lower level courses and go directly into the courses at the higher level with passing scores. Another consideration is to arrange for the acceptance of advanced credit for selected courses. Some flexibility must be allowed within the majors to allow for the mix of students progressing through the university programs. At every educational level, the expected outcome must be determined and communicated to students, general public, and employers.

University programs should develop partnerships with the businesses, industries, and agencies who employ graduates. This could be done through the use of advisory councils, planning teams, and curriculum consultants. Input is needed to identify appropriate workplace competencies and to evaluate curriculums. Workplace support for the

programs will be invaluable in providing assistance in the form of equipment, expertise, and grants, as well as providing potential internship and work-based learning sites, and employment for graduates.

University general education should also be involved with the educational movement and recognize the value of application to real-world situations. University administration must take steps to encourage and promote dialogue and communication between faculty from different departments and colleges. The performance outcome for graduates must be communicated to general education faculty as well as department faculty. Several possible ways to achieve these goals would be similar to the recommendations for the secondary schools. A university-wide team or committee could be established with smaller teams established within each program or related programs. The smaller teams would be composed of faculty from the academic areas, e.g., Math, Physics, Communications, Biology, Chemistry, and faculty from Industrial Technology, Agriculture, Home Economics, Business or any other applied department. Greater inter-departmental communication can only serve to improve all academic programs.

Teacher education programs must also include the Tech Prep integration models as part of the curriculum. The Departments of Educational Foundations and Educational Administration may approach Tech Prep as a school reform movement. It must become part of the curriculum in order to educate both pre-service and in-service teachers. The math and science requirements for education students have already been increased so education majors should be better prepared than in the past to teach more applied academics. Majors in the vocational areas could be encouraged to complete a minor in General Science or Math. The methods courses should be re-designed to include the Tech Prep methodology. It would be highly desirable if some of the 100 hours of pre-clinical experience could be with students and teachers in Tech Prep courses. Pre-service teachers tend to model the instruction they have seen. When both university and secondary teachers adopt the applied methods of instruction, the teacher education graduates can model their teaching. The application approach should be demonstrated and emphasized in the preparation of both vocational and academic teacher education students.

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TECH PREP

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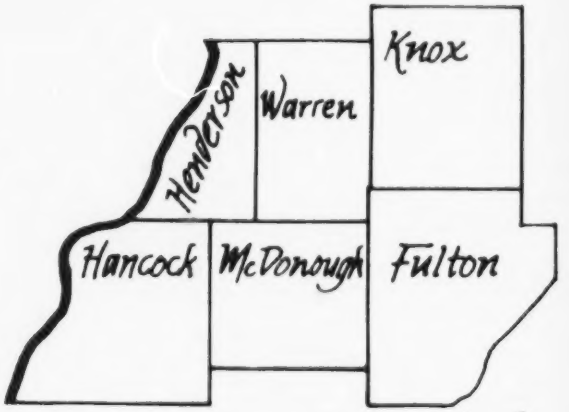
TECH PREP

IN WEST CENTRAL ILLINOIS



A PLAN WITH A FUTURE FOR THE FUTURE

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WHAT DO EDUCATORS SAY?

"By the mid-1990's it is predicted that 75 percent of all job classifications will require some postsecondary education."

U.S. Representative
William Ford
Michigan

"Tech Prep will revitalize the State's education programs to prepare our students for the workforce of the future."

Robert Leininger
State Superintendent of Education

"In high schools, there is no way to teach everything that ought to be taught without resorting to an interdisciplinary approach."

Gordon Cawelti
Executive Director
ASCD

"Tech Prep is an activity agenda which is focused on preparing persons to actively participate in tomorrow's work force."

Burton O. Witthuhn
Provost and Academic Vice President
Western Illinois University

WHAT DO EMPLOYERS SAY?

"Industry must have a highly technical and highly trainable work force ... Tech Prep will provide the fundamental background for both. It is a most timely program."

Joe Townsell
John Deere Company

"Tech Prep can enable students to focus their education on a marketable skill. We need Tech Prep!"

Sue Bassett
Director, Human Services
McDonough District Hospital

"Our ability to survive and succeed will parallel our ability to prepare a skilled and educated workforce equal to these challenges."

Patricia A. Poertner
Caterpillar Inc.

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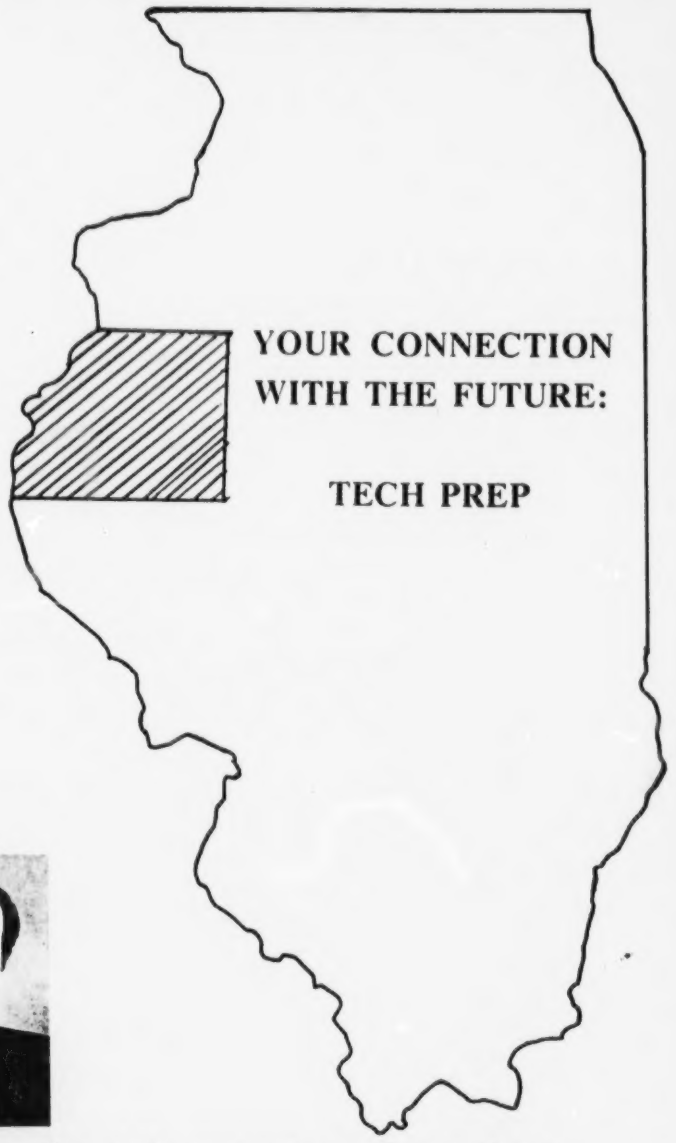
TECH PREP CONNECTION JOURNAL

THURSDAY, APRIL 2, 1992

"If we want our state to be able to participate in a global economy, we must first prepare our students for a lifetime of learning new skills for the work place. Tech Prep will revitalize the State's education programs to prepare our students for the workforce of the future. The integration of academic and technical education courses will make Tech Prep programs a valuable option for many of our students."

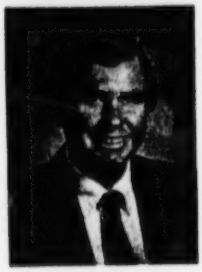
Robert Leininger
State Superintendent of Education



Tech Prep will be the "impetus for and cornerstone of vocational education reform during the next five years."

Richard J. Miguel
Assistant Superintendent
Adult, Vocational-Technical Education

GUEST EDITORIAL



Tech Prep

By Dr. William B. Abel
Superintendent,
Galesburg District #205

Competition is the driving force of American business. In a world where competition arises from an international as well as national marketplace, a qualified workforce is more necessary than ever before. This workforce requires not only technical skills, but competency in communication, computation, problem solving and critical reasoning.

That is why I am so excited about the Tech Prep Program. Tech Prep represents an educational path for students that integrates college preparatory coursework with a rigorous technical education concentration. It is a planned sequence of courses, both academic and technical, that begins at ninth grade and is coordinated with post-secondary coursework that leads to an associate degree. Since Tech Prep prepares students for a lifetime of learning, it provides preparation as well for a four year baccalaureate degree. Tech Prep is often referred to as a 4+2+2 Program, indicating four years of high school, followed by two years at a junior college and two years at a university.

Tech Prep targets the middle 50 percent of the student body, sometimes referred to as the forgotten majority, that have no clear path either into further education or into the workforce. It is estimated that by the mid 1990's, 75 percent of all jobs will require some postsecondary education. Tech Prep will prepare these students with the skills and competencies necessary to meet employer's performance standards not only for enty-level jobs, but for career advancement.

I have met with the superintendents from six other districts in the Delabar Vocational Education System to begin taking steps to develop and implement the Tech Prep Connection. Carl Sandburg College and Western Illinois University have already developed a 2+2 agreement in Computer Science. We are working to develop a secondary strand of preparatory coursework leading into the already developed post-secondary program, as well as working to develop a path of sequential courses in business, industrial technology and health and human services. We will begin working with school principals, teachers and counselors, area college representatives and members of the business community in the near furture and hope to have a Tech Prep Connection in place by the 1993-94 school year.

Tech Prep is an innovative program that I am excited about developing for District 205. To be competitive in the 1990's, I feel our students must be equipped with the basic skills, technical abilities and work ethics that will make them qualified in today's workforce as productive employees. Tech Prep can give them the skills they need for a successful future.

"Tech Prep is a new venture that brings together a cooperative partnership between business, industry and education for the betterment of the students who will be involved in the program. This program provides a great deal of potential for all participants and together, education and business can meet this challenge of preparing students for their future endeavors."

Raymond L. Franson
Regional Superintendent of
Knox County Schools

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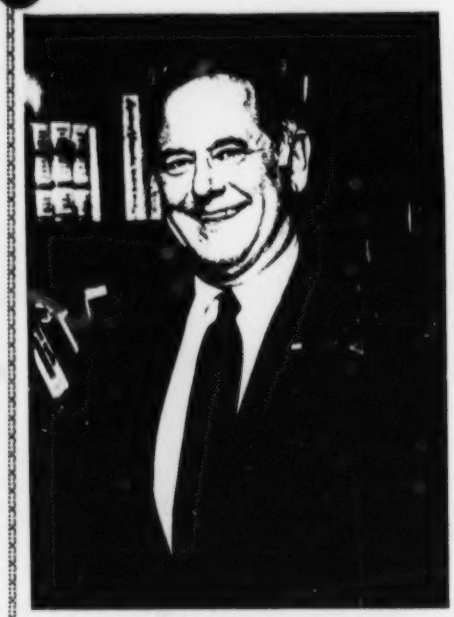
TECH PREP

WESTERN ILLINOIS UNIVERSITY PERSPECTIVE



"Routine manufacturing dependent on the advantages of low cost labor and cheap transportation is easily displaced in an arena of world competition and free trade. The flexible manufacturing systems needed to compete in the areas of unique product and quality control demand attentiveness to just-in-time inventories, small batch production, and technological dependency. As a consequence, the work force will be required to be committed to continuing education, team work, change, and quality control if it is to remain employed over the longer run. Tech Prep is an activity agenda which is focused on preparing persons to actively participate in tomorrow's work force. It is a bringing together of the educational and work place settings. It is a partnership for managing change and future productivity within our society. As such, I strongly endorse the Tech Prep agenda as one requiring our priority attention."

Burton O. Witthuhn
Provost and Academic Vice President
Western Illinois University

"Tech Prep is a unique approach to learning which helps students relate what they learn to their lives and the real world. This interest in linking and integrating disciplines is becoming more wide spread and more worth the effort as teachers are excited about the results. Students are motivated and enabled to do well in rigorous courses and they see the relationship to desired outcomes through various work-based experiences. Progressive sequencing of these experiences is benefiting students and is of interest to parents, educators, and business and industry leaders, who are becoming more familiar and very supportive of Tech(nical) Prep(aration) programs of study."

Mary M. Leach
Acting Dean
College of Applied Sciences

"The Tech Prep concept is the most exciting happening in my 32 years of being involved in education. Tech Prep prepares the middle 50% of all students to become productive members of society. Besides the integration of the curriculum, we are now taking into account the different ways students learn. It is my belief that integration and the applied (hands on) curriculum will enable high schools to vastly improve the quality of the high school graduate. No longer will students be asking, *"Why do we have to learn this?"*

Richard E. Well
Superintendent
Lewistown Community
High School #341

"America has no more urgent priority than the reform of education in science, mathematics, and technology."

F. James Rutherford, AAAS

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"*The Guide to Health Careers* published by the Illinois Board of Education lists 105 medical technology specialties. Most require certification that can be achieved in two years and have an entry level salary in excesss of $20,000. Tech Prep can enable students to focus their education on a saleable skill. We need Tech Prep!"

Sue Bassett
Director Human Services
McDonough District Hospital

Canton Perspective

"We at Canton High School are excited about the Tech Prep program. Tech Prep has enabled us to look at our curriculum in new and exciting ways. According to a recently published report, less than 20% of Illinois high school graduates received a bachelor's degree within eight years. What happens to these young people who fall short of achieving a university degree? Many, unfortunately, bounce from one entry level job to another, due to lack of direction and proper training. Our students will be better prepared for the 21st Century by having been associated with Tech Prep."

Dr. James M. Minick
Curriculum Director
Canton Union School District #66

"THE STATUS QUO IS NOT AN OPTION"

DR. RICHARD D. JONES

"When we look at the skills that will be necessary - technical, academic, interpersonal, as well as a willingness to continue to learn - we quickly realize that this can't be accomplished by technical teachers or academic teachers working independently. Students, teachers, counselors, administrators, and communities need to know that all programs and teachers are involved in the Tech Prep process."

Jeff Bryan
Agricultural Education
Field Advisor
District 3

"The Tech Prep program initiative in Western Illinois provides the opportunity for students to pursue vocational education from the public schools to the community college and to the university. The LaMoine Valley, Fulton, and Delabar Regional Delivery Systems, Sandburg, Spoon River and Western Illinois University have joined together to make this unique regional program possible. This effort is indicative of the cooperation that exists between and among educational institutions in Western Illinois."

Dr. Donald G. Crist
President
Carl Sandburg College

"Tech Prep is the solution to several challenges currently bedeviling educators. In secondary and post-secondary settings, we have been faced with increasing appeals from employers to better prepare students for the world of work, as well as with the increasing challenge of shoehorning exploding technology into our curricula. Tech Prep brings together all levels of education to design a seamless continuum of workforce preparation, which helps us increase the effectiveness of our curricula. But it also increases our efficiency in the face of limited and declining resources by reducing duplication of courses between levels and expansion of the curriculum at each level."

Dr. Felix Ha[illegible]
President
Spoon River College

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WHO WINS?

Your students! The middle 50% will be guided toward more challenging courses and post-secondary education.

Employers! The workplace will benefit by a better educated, more skilled worker.

High Schools! More students will stay in school with purpose and meaningful goals.

Post Secondary Schools! Entering students will be better prepared. Less time will be spent on remedial courses.

Communities! Cooperation at different levels of education will eliminate duplication, resulting in more fully developed human resourses.

WHO LOSES?

"Tech Prep is a vital link for students as they prepare for the work force. It is encouraging to educators when industry and business demonstrate this interest in education. Funding is being prioritized for Tech Prep. Students will have the opportunity to declare their curricular interest and actually pursue it through the community college, or even a 4-year college."

Roger D. Birkhead
Regional Superintendent
Henderson-Mercer-Warren Counties

"The challenges facing us as a nation are unprecedented as we look toward competing in a global marketplace. Our ability to survive and succeed will parallel our ability to prepare a skilled and educated workforce equal to these challenges. Tech Prep appears to be a valuable concept in building a successful future."

Patricia A. Poertner
Caterpillar Inc.

"In order to compete in a global economy in the 1990's and beyond, businesses must have a highly technical and highly trainable work force. The Tech Prep program will provide secondary students the fundamental background for both. It is a most timely program."

Joe Townsell
John Deere Company

"For too many students, junior/senior high school is a disjointed, fragmented study of unrelated subjects with no relation to their interests or the "real world." Tech Prep, through integration of academic and vocational coursework and a more applied approach to teaching academics, has the potential to offer more meaningful education to that majority of our students who coast through high school meeting minimum graduation requirements with no thought to their future and how education impacts that future."

Gayle R. Little
Region 3
Building Fairness Consultant

"Many *At-Risk* students have not been able to successfully take advantage of a "regular" school program. Tech Prep is addressing the narrowness of curriculum and inflexible school structures that contribute to these students dropping out. Tech Prep is redefining the meaning of school for these students by giving them a plan for their futures."

Jane Roth
Director
Project Stay-In

FULTON COUNTY

"Tech Prep offers educators an opportunity to restructure use of their curricula for the integration of technical and academic education courses. Students will be better prepared for making decisions about their future.

Gary L. Grzanich
Regional Superintendent
Fulton County

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TECH PREP

IS	IS NOT
* An avenue to educational reform	* The same approach to education but with a new name
* The integration of technical and academic curriculum	* Vocational - technical education only
* A secondary and post-secondary articulated curriculum	* Secondary or postsecondary education only
* An avenue to an associate of applied science degree and possibly more advanced education	* A terminal education program
* Partnerships between all levels of education and business/industry	* An isolated "track" approach to education
* Preparation for employment, careers and continuing education	* Entry-level job preparation only

"We must recognize that few substantial employment opportunities require only high school education. The highly tehnical nature of our automated, computer-driven society has created a workplace that needs workers with training beyond high school. We are approaching the realization that the traditional K-12 education is not enough and a K-14 educational system should be the realistic minimum educational experience."

Dr. Steven Breckon
Superintendent
LaHarpe CUSD #335

"In high schools, there is no way to teach everything that ought to be taught without resorting to an interdisciplinary approach."

Gordon Cawelti, Executive Director, ASCD

"A major challenge of education is to prepare today's students for tomorrow's job skills and management positions. Tech Prep will bridge the gap between academics and technical curricula providing intellectual challenges with practical outcomes."

Robert Baumann
Regional Superintendent of Schools
Hancock-McDonough Counties

STATE CHAMPS

Carthage Bluegirls Win Class "A" State Basketball Championship. Tech Prep Says "Congratulations!"

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TECH PREP

TECH PREP CONNECTION serving the counties of: Knox • Warren • Henderson • Fulton • McDonough • Hancock

MY PLAN

NAME _____

HIGH SCHOOL

1ST SEMESTER	GRADE	2ND SEMESTER	GRADE
FRESHMAN			
SOPHOMORE			
JUNIOR			
SENIOR			

ACTIVITIES / OFFICES

_____

_____

_____

_____

HONORS

_____

_____

_____

_____

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TECH PREP

COLLEGE

1ST SEMESTER	GRADE	SEM. HR.	2ND SEMESTER	GRADE	SEM. HR.
FRESHMAN					
SOPHOMORE					
JUNIOR					
SENIOR					

ACTIVITIES / OFFICES

HONORS

MY JOB

TECH PREP CONNECTION
P.O. Box 556
Macomb, IL 61455

PARTICIPATION AGREEMENT

Our goal has been to involve all schools in awareness and orientation to Tech Prep concepts. As we look to the 1992-93 school year a commitment will be needed in order to fairly allocate funds available. Funding will involve expenditures for equipment, resource materials, and staff development.

What is Expected of Participating Schools?

Participating schools will establish a Tech Prep committee providing oversight to all related activity. The committee will include, as a minimum, the principal, counselor, and teachers representing technical and academic disciplines.

Participating schools are committed to a concept of upgrading technical skills and expectations in reading, math, science, and communications, targeting the middle 50% of the student body.

Participating schools will incorporate integration activities across the disciplines making abstract concepts more understandable by applying them to real-life situations.

Participating schools will encourage students to pursue continued education and training through articulation with post-secondary institutions.

Participating schools will develop on-going relationships with business and industry ensuring educational responsiveness and mutually beneficial partnerships.

This agreement represents support for the Tech Prep concept and carries no implication for additional expenditures by participating school districts.

Signature, School Official_____ Date _____

School District _____

Address _____

City/State/Zip _____

Telephone _____

Tech Prep Education/Private Sector Partnership Agreement

TECH PREP CONNECTION

SERVING THE COUNTIES OF: KNOX-WARREN-HENDERSON-FULTON-McDONOUGH-HANCOCK

Secondary schools, Carl Sandburg College, Spoon River College, and Western Illinois University have formed a consortium with a basic objective of providing a better qualified workforce.

Tech Prep represents an educational path that integrates college preparatory coursework with a rigorous technical education concentration. It is a planned sequence of courses, both academic and technical, that begins at 9th grade and is articulated with a post-secondary experience leading to an Associate or Baccalaureate degree.

Participating schools are committed to a concept of upgrading not only technical skills, but also expectations in reading, math, science, and communications. Tech Prep educators design learning experiences in an attempt to ensure students meet standards desired by potential employers. Employers must not only identify and communicate performance standards, but be willing to provide incentives to make Tech Prep attractive to students. **We have read the above and agree to consider the following incentives to Tech Prep Graduates:** (Please circle as applicable).

a. priority hiring considerations,
b. wage and/or advancement incentives,
c. support for continued work-related training and education,
d. paid internships or employment for students during the school year or summer while enrolled in a program,
e. scholarships to post-secondary institutions.
f. other _____

_____

This agreement represents support for the Tech Prep concept and does not constitute a guarantee of employment or financial aid.

Signature _____ Date _____

Typed Name _____

Name of Company, Corporation of Business _____

Address _____

City/State/Zip _____

Telephone (_____) _____

TECH PREP

TECH-PREP CONNECTION

P.O. BOX 556 • MACOMB, IL 61455 • (309) 837-4821

JOYCE TAYLOR
DIRECTOR

GEORGE PAPE
COORDINATOR

TECH PREP CONNECTION MINI GRANT

Schools filing Participation Agreements with Tech Prep Connection have an opportunity to apply for a "Mini Grant" during the 1992-93 academic year. Grants may be used by school districts to carry out Tech Prep activities involving integration, staff development, resource materials, stipends, and substitute teacher pay as applicable. The procedure for receiving a Mini Grant is as follows:

(1) Submit the proposal form to the Tech Prep Coordinator via Vocational Systems Directors.

(2) Proposal will be evaluated by the TPC Advisory Board

(3) Upon approval the funds will be issued

(4) Upon completion of the project a final report (including budget) is to be submitted to the TPC Advisory Board.

Narrative Description of the Project (Brief)

A. Introduction

B. Objectives

C. Expected Outcomes

D. Target Population (Students, Teachers, Parents, Private sector)

E. Budget Request

F. Submitted by:

_____ _____

School District Representative

G. Approved by TPC Advisory Committee:

_____ _____

Signature Date

The
Edward Arthur
MELLINGER
Educational Foundation
Inc.

Policies and
Procedures

1025 East Broadway
Monmouth, Illinois
61462

309/734-2419

APPLICATION PROCEDURES

Applications are accepted by the Foundation during the period February 1 to May 1 only. Applications received during that time are reviewed by a Selection Committee in June, and announcement of grants and loans is made in July.

At present, the Foundation considers only applications from students who reside in Western Illinois and Eastern Iowa. They may attend any accredited institution within the United States.

Scholarship grants are renewable annually for the balance of the additional years of a four-year college educational program, so long as the recipient is maintaining satisfactory progress toward obtaining his or her degree or diploma.

Loans may also be made on a renewal basis annually until the recipients complete the degree for which the loan was originally awarded.

Scholarships may be awarded to students in either junior or senior colleges, or to students with no degree who attend diploma schools of nursing. On very rare occasions consideration is given to students in other kinds of educational programs.

The policy of annual grant renewal means that only about one fourth of the funds disbursed by the Foundation each year is available to new applicants.

Generally, less than 300 applicants for new scholarships will receive grants, an approximately 60 new loans will be approved.

Edward Arthur Mellinger

Edward Arthur Mellinger was born in 1874 near Morning Sun, Iowa. After attending a one-room country school and graduating from the Morning Sun high school he attended Iowa Wesleyan College in 1890. The next year he enrolled at Iowa State College (now University) in Ames, where he earned a degree in electrical engineering.

During his years at Iowa State Mr. Mellinger took part in a wide variety of extra-curricular activities, from debating to athletics to the college newspaper. He excelled in all of them. In his academic work, he was particularly interested in the science of telephone communications, which was then in its infancy.

This interest led to a lifelong association with the telephone industry, during which he traveled widely throughout the world as he gave leadership to the technical developments which were taking place.

Mr. Mellinger made significant contributions to many phases of the growing telephone industry. He was a skilled engineer who supervised the development, manufacture and installation of telephone systems in many areas of the world. He was also an effective salesman and spent a portion of his career in this capacity.

In spite of the demands placed on him by these responsibilities, Mr. Mellinger also found time to engage in experimental work which resulted in his obtaining 17 U.S. Patents for equipment which is still used by the telephone industry.

During the latter part of his career Mr. Mellinger was increasingly involved with executive duties. He became Chairman of the Associated Telephone and Telegraph Company when it was formed in 1925, and he was also a director of two British telephone companies. Later he was a vice-president and director of Automatic Electric Company.

Mr. Mellinger died in 1933 at the age of 59. A few years earlier he had established the Mellinger Investment Company which he hoped would ultimately be the source of an endowment which could be used for educational purposes. However, the company's assets were heavily depleted by the stock market crash of the early 1930's, and Mr. Mellinger concluded there would not be enough remaining for the foundation he had in mind.

Consequently he changed his Will and left what remained of the Mellinger Investment Company to his two sisters, Maude Luther Mehaffey and Inez A. Hensleigh.

Years later Mrs. Hensleigh, by now the owner of all the stock following the death of her sister, recalled her brother's interest in establishing an educational fund. Since there were no direct descendants of Mr. Mellinger, she concluded that an educational foundation would be an appropriate use for the assets of the Mellinger Investment Company, which had appreciated in value over the years.

Accordingly she arranged for the company's assets plus the residue of her own estate to be used to create the Edward Arthur Mellinger Educational Foundation, Inc., upon her death.

After making her decision, Mrs. Hensleigh obtained the assistance of two counselors, Attorney Robert J. Clendenin, Sr., and Lloyd C. Stevenson, Certified Public Accountant. They served as president and secretary-treasurer respectively from the date of incorporation until October 27, 1981. Mr. Clendenin then retired and Mr. Stevenson succeeded him as president and treasurer. Mr. Clendenin died on December 1, 1983. Mr. Stevenson became president emeritus in January, 1986.

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GENERAL INFORMATION

The Edward Arthur Mellinger Educational Foundation was incorporated in 1959 in accordance with the Will of Inez A. Mellinger Hensleigh of Monmouth, Illinois.

Mrs. Hensleigh directed that the Foundation be created in memory of her brother, Edward Arthur Mellinger, a distinguished electrical engineer who was one of the pioneer leaders in the development of telephone communications throughout the world.

She further directed that the Foundation's income should be used for educational purposes, including provision of financial assistance for deserving students of the United States to attend accredited schools within the United States.

The resources of the Foundation at the time of its incorporation included the entire stock of the Mellinger Investment Company, established by Mr. Mellinger in 1929 and bequeathed to his two sisters at the time of his death. This stock had a value of approximately $5,000,000 at the time of Mrs. Hensleigh's death. In addition, Mrs. Hensleigh left to the Foundation the residue of her personal estate in the amount of approximately $1,500,000.

In accordance with Mrs. Hensleigh's wishes, the income of the Foundation, after expenses, is disbursed in scholarship grants which are awarded to students at the undergraduate level. In addition, the Foundation makes educational loans to students who are engaged in studies at graduate schools.

During its first thirty years, the Foundation has distributed scholarship grants totaling more than $8,000,000 to some 7,000 students. In addition, about 2,200 graduate students have borrowed nearly $5,000,000. Their repayment record is outstanding.

Inez A. Mellinger Henseligh, *Donor*

TRUSTEES, OFFICERS & STAFF

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Chairman of the Board
National Bank of Monmouth
Trustee and President

Lloyd C. Stevenson
Certified Public Accountant
Trustee, President Emeritus

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Executive Vice President
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Jackie D. Watson
Administrative Supervisor and Assistant Secretary

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TECH PREP CONNECTION

Tech Prep Students are eligible to apply for a Scholarship Grant through the Mellinger Foundation. Applications may be obtained by contacting the foundation:

The Edward Arthur
MELLINGER
Educational Foundation Inc.
1025 East Broadway
Monmouth, IL 61462
309/734-2419

Students should identify themselves as **"TECH PREP STUDENTS"** on the Mellinger Application Form. Grants are not automatic, however, Tech Prep Students will be given careful consideration.

Good Luck!

The Tech Prep Connection

Tech Prep Connection
P.O. Box 556
Macomb, IL 61455
(309)837-4821

STUDENT TRAINEE PROGRAM GUIDELINES AND REQUIREMENTS

These guidelines are designed to provide consistency and direction to the Student Trainee Program.

1. Students must be at least 16 years of age, a full-time student, and currently enrolled as a sophomore, junior, or senior in high school, or a freshman in college. (Note: High school seniors are only eligible for possible placement in the Student Trainee Program if they plan to attend a community or 4 year college as a full-time student in a curriculum related to the Student Trainee Program.)

2. Students must be enrolled in the required high school/college curriculum associated with the Trainee Program and maintain a "C" or above average.

3. Students must meet work site criteria regarding specific job fields.

4. Transportation to and from the job will be the obligation of the student.

5. Resumes submitted will be reviewed to ensure that they meet work site criteria. Students who appear to meet qualifications and requirements will be invited for an interview. Those with keyboard skills may be tested. Interview schedules will be sent to schools.

6. The initial selection of student trainees will be done by appropriate school personnel. Final selection will be made by the employer and will be based upon interview results, skills of the student, and availability of appropriate work stations.

7. Once selection is completed, schools will be notified by a placement sheet for each student selected. Employers will also inform schools of those students not placed.

8. The first day of work in most cases will be in June when selected students will attend an orientation. At that time, they will fill out employment papers, time cards, and report to their work assignments.

9. The student trainee work schedule will total 15 to 20 hours per week during the school year. In the summer or holidays, students could work an 8-hour day depending on availability of the student and needs of the department.

10. Continued employment in the program for students is contingent upon:
    a. business conditions
    b. remaining a full-time student
    c. taking appropriate related course curriculum at school
    d. maintaining adequate performance in their assigned work

---

JOB FIELD QUALIFICATIONS

CLERICAL

* Keyboard Skills - Required
* Accounting - Optional
* Personal Computer - Optional

SECRETARIAL

* Typing - Enrollment Required
* Shorthand - Enrollment Required
* Personal Computer - Optional

TECHNICAL

* Math - Algebra & Geometry
* Drafting - Optional
* Personal Computer - Optional

FOR IMMEDIATE RELEASE
November 13, 1991

TECH PREP SUMMIT TO BE HELD AT WIU

MACOMB, IL -- School Administrators, Community College and University Educators along with business and industry leaders from the region will gather at Western Illinois University for a Tech Prep Summit at 10:30 a.m. Tuesday, November 19 in the Union Sandburg Lounge.

"The purpose of the Summit will be to get educational leaders from the region together to develop a comprehensive Tech Prep program that provides sequenced, academic and vocational integrated coursework from high school through the university level," said George Pape, Tech Prep Coordinator for the counties of Knox, Warren, Henderson, Hancock, Fulton and McDonough.

With impetus provided by the Federal Tech Prep Education Act, Pape's efforts in this region will concentrate on three career areas, business, health/human services and industrial technology. The goal of Tech Prep is to produce a technological proficient workforce that will attract business and industry and make the state of Illinois economically competitive.

The Summit will consist of a Tech Prep presentation at 11 a.m. by Gordon Kinkead, Training Coordinator for John Deere Manufacturing Company, and a keynote luncheon address by Kenneth Maurer, Superintendent of Metamora Township High School District at 12:45 p.m. that will assist participants in understanding the goals and objectives of Tech Prep initiatives.

"The issues of global economic competitiveness, the perceived need for educational reform and concerns about the

economic vitality of our region and state calls for such an initiative as Tech Prep," said Pape. "The Summit is a first step in developing a career path designed to up-grade skills prior to entering the world of work. When looking toward the business and industry needs of the 21st century, a systematic educational plan from the high school to the university level planned with business and industry leaders will help educators meet these needs."

# # # #

Pilot
Hancock County Journal

LaMoine System receives grant

The LaMoine Valley System, Macomb, has received a grant for $82,068 to strengthen vocational-technical education from the State Board of Education.

One of 31 "Tech Prep" grants, the money will be used by the participating organizations, Delabar Vocational Education System, Fulton County Area Vocational System, Spoon River College and Carl Sandburg College.

Of the 31 grants, 14 were planning grants, and 17 were implementing grants to agencies receiving planning grants for the 1991-92 school year. LaMoine System's grant was a planning grant.

Tech Prep represents sequenced vocational-technical courses integrated with academic coursework. This combination is designed to provide a rigorous program that meets the expectations of business and industry and institutions of higher learning.

By combining college-preparatory and vocational technical curricula, Tech Prep students will possess the necessary skills to enter technical careers after completing a two-year associate degree or a two-year certificate program at a community college. Tech Prep will also enable students to continue their education for a four-year college degree.

Students who participate in Tech Prep programs will be able to demonstrate competence in mathematics, science and oral and written skills and use problem-solving. They will be equipped to meet employer standards in industry, business, health, agriculture and service occupations.

Education agencies receiving the grants involve school districts and community colleges. These agencies are required to involve high schools, community colleges, businesses and industries as equal partners in developing and implementing Tech Prep programs.

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Daily Review Atlas, Monmouth, Illinois

Working together Monday, June 22, 1992

Above, Monmouth High School students and Soil Conservation Service workers install the duck houses. Below are Delbert Price, chairman of the Warren County Soil and Water Conservation District, Rick Winbigler, resource conservationist at at the Soil Conservation Service, and MHS shop teacher Jeff Tyrrell.

Cooperation lives at MHS

By BARRY McNAMARA
Editor

On our front page last week, you read about a project in the works to make mathematics and science more practical to our students.

Some class members of Jerry Vicare's ecology unit and Jeff Tyrrell's shop class at Monmouth High School have already experienced such a project, combining their efforts with the Soil Conservation Service to construct and install duck houses for an 80-acre conservation area by Cedar Creek.

"We're always talking about what we can do to better serve our students and teach them about the real world," said Vicare. "This was a practical project where the students applied their knowledge from the classroom into the real world."

Vicare was also pleased by the cooperation that was shown not only between the school and the community but between different departments at MHS.

"That's really the goal in the state," he said of the practical application. "To not only talk about it, but to do something about it. That's what makes high school real."

Vicare said that a special plug should go to his five students who encountered a great deal of manual labor in installing the duck houses. Those students were Jason Allen, Adam Bates, Molly Bevenour, Phil Cofield and Dustin Stevens.

The 10 duck houses for the project were made by Tyrrell's fundamental woods class, and feature galvanized metal on the front to keep away unwanted climbing animals. They will serve as nesting houses for the ducks.

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Friday
July 16, 1993

MACOMB JOURNAL

35¢

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Tech Prep prepares students for real life

By DARCIE DYER
Journal Staff Writer

The U.S. government's fear of Americans lagging behind Japan in business, industry and education led the government to create the Tech Prep Education program in 1991.

Joyce Taylor, director of the Lamoine Valley Vocational System's Tech Prep Program, explained Tech Prep is an innovative program designed to provide employers with a work force equipped with the basic skills, technical knowledge and work ethics suitable for immediate entry as productive workers.

"Tech Prep requires a true partnership between business, industry and education. Currently, 30 out of 31 schools in our six-county region — McDonough, Knox, Warren, Fulton, Henderson and Hancock — have committed to our concept which targets the middle 50 percent of students and provides them with the skills employers say they want in their employees," she said. "And we're not only upgrading technical skills, but also reading, math, science and communications."

According to Taylor, high school vocational education, even when done well, doesn't provide a sufficient level of skills for most jobs of the future. She added a lot of high school students graduate without the skills needed to make them employable.

"We are trying to remedy this. There's just not a good smooth transition after high school for many students. Our program integrates basic skills with business and industry," she explained. "Tech Prep's symbol is a triangle and each side stands for something. First, we're partners with business and industry. Second, we start at the secondary level and continue into the post-secondary level — we encourage them to get a degree, and third, we emphasize partnership between the different disciplines."

Taylor said the program also teaches students real-life application by preparing them both academically and technically. Lamoine Valley Vocational System's program focuses on health technology, while the Fulton Area Vocational System stresses electronics and the Delabar Vocational Education System utilizes business. Western Illinois University, Carl Sandburg College and Spoon River College are also participants of Tech Prep.

Lamoine Valley is currently working with McDonough District Hospital and other health care facilities in the area to integrate health technology courses into the students' regular classwork.

"We have identified many of the courses the student will need, now we're looking at the content of the courses and the method they are taught," Taylor said. "We are working with the teachers and health care professionals. By the end of the year, we hope to have a handle on the courses students interested in health technology should be taking. Eventually, we will expand our programs into other areas of business and industry."